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EXAMINER ERRS IN REJECTION OF CLAIMS 45, 48-51 AND 57 AS BEING UNPATENTABLE OVER NIELSEN (USPN 5,435,134) IN VIEW OF ANDERSON (USPN 4,442,887)

HILL VS NIELSEN

1. The Nielsen pump is a single acting pump that relies on a negative pressure created by spring loaded suction valves on the upstroke of the piston to do its' work i.e. driving a hydraulic motor connected to a generator.
2. The Hill ballast-weighted piston (8) eliminates the need for a negative pressure in the pumping chamber as required by Nielsen.
3. The Hill ballast-weighted piston (8) eliminates the need for reducing the pressure in the pumping chamber until the sea water starts to boil as required by Nielsen.
4. The Nielsen pump does no work on the down stroke of the piston other than to open a flap check valve to allow the water to flow back into the sea at the ambient water pressure of the surrounding sea.
5. The Hill pump on the upstroke allows water to flow into its' cylinder and does no work other than raising the ballast-weighted piston and opening the inlet valves at ambient water pressure.

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6. The Hill pump uses the weight of the ballast-weighted piston to create a positive pressure and do work on the down stroke.
7. The inlet valves in the Hill Pump require no springs to maintain a negative pressure in the pumping chamber as is required in the Nielsen Pump.

HILL VS ANDERSON

1. The Anderson flexible connector is used to lift the piston without ballast and pump on the upstroke while allowing fluid to flow into the pumping chamber under the force of gravity on the down stroke.

2. The examiner errs in saying the Anderson Pump discloses a mooring ring guide and wear ring. Anderson does disclose a solid shaft with packing or "O" rings instead.

3. The upper end of the Anderson pump must be tightly sealed to prevent the pumped water from escaping into the surrounding sea as it is pumping water on the upstroke.

4. This mandates the use of rigid shaft to pass through packing seals or "O" rings at the top of the pumping chamber and attached to the flexible connector outside of the pumping chamber at the shaft's upper end while the shaft's lower end is connected to the piston.

5. Either packing or sealing "O" rings must be used where the shaft exits the pumping chamber to create a tight seal and connects to the flexible connector.

6. Using the flexible connector to pump on the upstroke mandates the pumping chamber be defined as the upper top surface of the piston, enclosed top cylinder, cylinder walls between the top of the piston and the top of the cylinder, cylinder shaft, packing and/or "O" rings surrounding the shaft and the hole at the top of the pumping cylinder where the shaft exits.

7. The Anderson flexible connector with its rigid shaft connection restricts the length of the pumping motion to the length of said shaft.

Whereas my connector is an improvement as it –

1. The Hill connector (4) raises Hill's ballast-weighted piston (8), bringing fluid in under the force of gravity on the upstroke and pumping the fluid out by the weight of Hill's ballast-weighted piston (8) on the down stroke.

2. This eliminates the need for a rigid shaft enclosed in packing between the connector and piston as is needed in the Anderson pump.

3. This eliminates the need for an enclosed upper end as the pumping chamber as is needed in Anderson pumps.

4. This eliminates the need for packing or sealing "O" rings around a rigid shaft as is needed in the Anderson pumps.

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5. The Hill connector (4) allows the pumping chamber to be defined by the bottom of the surface of Hill's weighted-ballasted piston (8), Hill cylinder walls (7) and enclosed bottom of cylinder (13).

6. The Hill connector (4) allows a pump stroke that is limited only by the length of the Hill cylinder (7) thereby being able to create a pumping chamber of any length required, without concern over the connector (4) or its attachments, as is a necessary concern in the Anderson connector.

HILL VS EP-0 875 257 (HERAFTER (EP '257)

(EP '257) is a hand held breast pump for extracting milk from the female breast. The stop pins provided therein are to restrict the manual movement by hand of the piston are not analogous to, not anticipated, and no suggestion is made in any of the wave actuated pump patents cited that the pin stops can be used, thus this is hindsight on the part of the examiner.

HILL VS PARKER US-5,105,094

Hill's vented passageway in piston as cited in Hill's claim 52 is dependent on Hill's claim 45 and thus does not conflict with Parker.

AVANTAGES AND UNIQUENESS OF HILL PATENT APPLICANTION 10/600.701

1. The crux of the invention is the ballast-weighted piston (8) as shown in claim 45, page 7 line 15 through page 8 line 3, where I have used in part the phraseology and

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semantics provided the "Examiner's Proposed Amendment". No other invention uses ballast in the piston (8) to provide the pressure necessary to pump the fluid.

1. The Hill ballast-weighted piston allows the pumping chamber to be defined by the bottom of the surface of the piston (8), cylinder walls (7) and enclosed bottom of cylinder (13)

2. The Hill ballast-weighted piston (8) eliminates the need for spring loaded intake valves

3. The Hill ballast-weighted piston (8) eliminates the need for a negative pressure in the pumping chamber.

4. The Hill ballast-weighted piston (8) eliminates the need for reducing the pressure in the pumping chamber until the sea water starts to boil.

5. The Hill ballast-weighted piston (8) eliminates the need for an enclosed upper end as the pumping chamber.

6. The Hill ballast-weighted piston (8) eliminates the need for a rigid shaft surrounded by packing or sealing "O" rings on the upper end of the pumping chamber as the pumping chamber is below the piston's bottom surface, the connector (4) is connected to the top of the piston (8) and passes through the open top of the cylinder (7) only.

Whereas my connector (4) is an improvement as it –

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1. By having the ballast in the piston (8), the connector (4) is always in a state of tension in both the up and down stroke.

2. The Hill connector (4) under tension, raises the weighted-ballasted piston,(8) bringing fluid in under the force of gravity on the upstroke and still under tension caused by the ballasted piston,(8), pumps the fluid out by the weight of the ballasted piston,(8) on the down stroke.

3. The connector (4) can be either flexible or rigid in all or in part as it is always in a state of tension and the top of the pumping cylinder is open, requiring no sealing, packing to restrict the length of a connector (4) or rigid shaft.

4. The Hill connector (4) allows a pump stroke that is limited only by the length of the cylinder (7) thereby being able to create a pumping chamber of any length required, without concern for to the connector (4) or it's attachments, packing or rigid shafts. This allows the Hill pump to accommodate great wave, tide and current changes.

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